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Kepler's second law and conservation of angular momentum

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- Abstract
- References (14)

Kepler's second law is calculated for 18 planets and asteroids. It is shown that equal areas are swept in equal intervals of time only near the perihelion (P) and the aphelion (A). A highly significant relation between the ratio of the area swept at the average of P and A to the area swept at semimajor (S) in the same interval of time and the eccentricity is presented. The equation is ratio = $a \cdot e^b + c$ with $a = -0.617$, $b = 2$, and $c = 1.00$. The correlation coefficient is 0.9975. The ratio is equal to $\sqrt{1-e^2}$, which is equal to $\sin\theta$, where θ is the smaller angle between the two vectors v and r. Angular momentum is a vector perpendicular to the plane formed by v and r and is conserved, indicating that there is no torque in the direction vertical to the plane of the orbits.

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